PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	17.11.2004
Applicant's or agent's file reference P5230PC00	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IS 03/00022	06.08.2003	06.08.2002

Applicant
SKAGINN HF. ET LA.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Salaün, M Tel. +49 89 2399-2126

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P5230PC00	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/IS 03/00022	International filing date *(day/month/year)* 06.08.2003	Priority date *(day/month/year)* 06.08.2002
International Patent Classification (IPC) or both national classification and IPC A22C25/17		
Applicant SKAGINN HF. ET LA.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
05.03.2004	17.11.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Kock, S Telephone No. +49 89 2399-2173

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IS 03/00022

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-11 as originally filed

Claims, Numbers

1-15 filed with telefax on 11.08.2004

Drawings, Sheets

1/14-14/14 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-14
	No:	Claims	15
Inventive step (IS)	Yes:	Claims	1-14
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1) The closest prior art is constituted by D1 = WO-A-98/05215. The subject-matter of present independent claims 1 and 12 essentially differ from the disclosure of D1 in the aspect of form-freezing the fillet of fish by blow-and-touch followed by simultaneous removal of skin and bones (notably pin bones). Conversely, D1 teaches to first remove the bones and following this, optionally, to skin the fillet. The novel and inventive aspect of removing bones together with the skin (cf. description page 3, lines 30-37), in combination with blow-and-touch freezing which ensures a high degree of freezing of a shell of the meat whilst not freezing the meat in the middle is neither disclosed in the available prior art nor is it readily derivable therefrom (Article 33(2)(3) PCT).

2) Claims 2-11, 13 and 14 are dependent claims and are likewise considered to meet the requirements of the PCT with regard to novelty and inventive step (Article 33(2)(3) PCT).

3) The product of claim 15 cannot be seen as fulfilling the requirements of the PCT with regard to novelty. A skinned fish fillet having its pin bones removed, as eg. known from D1, cannot be distinguished from a fish fillet obtained by claim 1 of the present application, hence the subject-matter of claim 15 lacks novelty (Article 33(2) PCT).

4) The subject-matter of the present application is considered to be industrially applicable (Article 33(4) PCT).

Claims

1. A method for processing fish or fish fillets by removing at least a part of the bone area simultaneously as the fillet is skinned, the method comprising:

- form freezing the fish to be processed by combining blow-and touch-freezing, and

- removing the fish skin after the necessary form freezing is obtained,

wherein the form freezing comprises cooling the surface of a conveyor belt by an airflow, the conveyor belt in a freezer comprising drop-shape aluminium beam, lowering the temperature of the aluminium by airflow, such that the heat from the fish fillet is removed through touch freezing, and wherein the airflow from above and sidewise freezes that part of the fillet, which does not touch the aluminium beam, so that frozen shell is generated around the fillet.

2. A method according to claim 1, wherein the form freezing has the function that the adhesion in the fish-meat adjacent to the fish skin is larger than the adhesion between the fish-meat and the fish skin which follows in that by removing the fish skin no fish-meat is removed with the fish skin, and wherein the form freezing has also the function that the part of the bone area that is fastened to the fish skin is removed as the fish skin is removed.

3. A method for processing fish according to claims 1 and 2, wherein the remaining parts of the bone area are removed manually.

4. A method for processing fish according to any of the preceding claims, wherein the form freezing comprises fast freezing the outmost layer of the product so that the freezing is not extended towards the core of the fish or the fish fillet.

5. A method for processing fish according to any of the preceding claims, wherein the speed of the form freezing is such that it freezes 1-2 mm of the outmost layer of the fish.

6. A method for processing fish according to any of the preceding claims, wherein the temperature of the outmost layer is below −20°C, while the core temperature of the fish-meat is larger than 0°C.

7. A method for processing fish according to claims 1 or 2, wherein lowering the temperature of the fish fillet in a processing increases the value of the end product by decreasing damages due to temperature such as microorganism growth and chemical changes as a result of changes in enzyme activity.

8. A method for processing fish according to any of the preceding claims, wherein the form freezing of a fish fillet causes a lowering in the temperature during processing and increases the value of the product due to less handling during the processing such as looseness in the fish fillet.

9. A method for processing fish according to any of the preceding claims, wherein the form freezing of the fish fillet causes a lowering in the temperature during the processing.

10. A method for processing fish according to any of the preceding claims, wherein the form freezing increases the possibility of cutting the product into valuable products.

11. A method for processing fish according to any of the preceding claims, wherein the form freezing of the fish fillet results in less liquid loss in the product during the handling and the processing.

12. An apparatus for removing at least a part of the bone area simultaneously as the fillet is skinned by form freezing the fish to be processed using the combining blow-and touch- freezing method of claims 1 – 10, the apparatus comprising:

- cooling means for form freezing the fish, the cooling means further comprising:
  - conveyor belt, and
  - openings for airflow 22, 23, 24 for cooling the conveyor belt and the fish fillet,

- device for removing skin and pin bones, the device further comprising:
  - a conveyor belt
  - guidance for positioning the bones in the fillet
  - sensors, and

- a skin-removing unit comprising a roller, a knife and a spooler shaft.

13. An apparatus according to claim 12, wherein the upper part of the conveyor belt comprises drop-shape aluminium beam 18 and 19 generating a smooth upper surface.

14. An apparatus according to claim 12, wherein the spooler shaft has a ridged surface and the spooler shaft is turning in a direction opposite to the roller for removing the skin away from the fillet.

15. A product processed with a method and apparatus according to any of the preceding claims.